

CLAIMS

What is claimed as the invention is:

1. A telescoping steering column assembly comprising:
 - an outer jacket with a first end and a second end;
 - an inner jacket with a first end and a second end, the first end of the inner jacket dimensioned to be received telescopically within the second end of the outer jacket;
 - a sleeve having a wall and positioned inside of the outer jacket at the second end of the outer jacket;
 - the first end of the inner jacket positioned within the sleeve inside the outer jacket;
 - the assembly configured for relative telescoping movement between the outer jacket and the inner jacket, with an outer surface of the inner jacket in contact with an inner surface of the sleeve, and an inner surface of the outer jacket in contact with an outer surface of the sleeve,
 - the inner surface of the sleeve which contacts the outer surface of the inner jacket located on at least one internal rib which protrudes from the wall of the sleeve and is aligned with a longitudinal axis of the sleeve, and
 - the outer surface of the sleeve which contacts the inner surface of the outer jacket located on at least one external rib which protrudes from the wall of the sleeve and is aligned with a longitudinal axis of the sleeve.
2. The telescoping steering column assembly of claim 1, wherein the at least one internal rib of the sleeve is offset from the at least one external rib of the sleeve.
3. The telescoping steering column assembly of claim 1 wherein the sleeve further comprises at least one biasing rib on an exterior of the sleeve wall and which is radially aligned with an internal rib of the sleeve.
4. The telescoping steering column assembly of claim 1 further comprising a bonding agent located between at least two external ribs of the sleeve, the bonding agent forming a bond between the sleeve and the outer jacket.

5. The telescoping steering column assembly of claim 1 wherein a width dimension of an internal rib of the sleeve is greater than a width dimension of an external rib of the sleeve.
6. The telescoping steering column assembly of claim 1 wherein a combined thickness dimension of the wall of the sleeve, at least one internal rib, and at least one external rib is at least equal to a distance between the outer surface of the inner jacket and the inner surface of the outer jacket.
7. The telescoping steering column assembly of claim 1 further comprising a plurality of internal ribs protruding from an interior of the sleeve wall at radially spaced locations.
8. The telescoping steering column assembly of claim 7 further comprising a plurality of external ribs protruding from an exterior of the sleeve wall at radially spaced locations and radially offset from the radially spaced internal ribs.
9. The telescoping steering column assembly of claim 1 wherein the surface area of the at least one internal rib in contact with the inner jacket is greater than a surface area of the at least one external rib in contact with the outer jacket.
10. The telescoping steering column assembly of claim 1 wherein the wall of the sleeve is flexible between the outer surface of the inner jacket and the inner surface of the outer jacket.
11. A steering column assembly comprising:
 - an inner jacket having a first end and a second end;
 - an outer jacket having a first end and a distal end, the second end of the inner jacket inserted into the outer jacket through the distal end of the outer jacket;
 - a sleeve which fits between the inner jacket and the outer jacket, the sleeve having internal ribs which contact an outer surface of the inner jacket, and external ribs which contact the inner surface of the outer jacket.

12. The steering column assembly of claim 11 wherein the internal and external ribs of the sleeve are generally aligned with a longitudinal axis of the sleeve, and at least one of the internal ribs of the sleeve is offset relative to at least one of the external ribs of the sleeve.

13. The steering column assembly of claim 11 wherein the sleeve further comprises at least one biasing rib on an exterior of the sleeve which is radially aligned with an internal rib of the sleeve.

14. The steering column assembly of claim 11 further comprising a bonding agent located between the sleeve and the outer jacket.

15. The steering column assembly of claim 11 wherein a width dimension of an internal rib of the sleeve is greater than a width dimension of an external rib of the sleeve.

16. The steering column assembly of claim 11 wherein a combined thickness dimension of the wall of the sleeve, at least one internal rib, and at least one external rib is at least equal to a distance between the outer surface of the inner jacket and the inner surface of the outer jacket.

17. The steering column assembly of claim 11 wherein a segment of the sleeve extends past the distal end of the outer jacket.

18. The steering column assembly of claim 11 wherein the sleeve is able to flex between the outer surface of the inner jacket and the inner surface of the outer jacket.

19. The steering column assembly of claim 11 wherein the outer jacket is fixed, the sleeve is secured to the outer jacket, and the inner jacket is able to telescope relative to the outer jacket and sleeve.

20. The steering column assembly of claim 11 wherein the inner jacket is fixed, the sleeve is secured to the outer jacket, and the outer jacket and sleeve are able to telescope relative to the inner jacket.

21. A steering column assembly comprising:
an inner jacket positioned within and outer jacket;
a sleeve positioned between opposing surfaces of the inner and outer jackets, the sleeve having internal ribs which contact the inner jacket, and external ribs which contact the outer jacket, whereby a wall of the sleeve is spaced from the inner jacket and the outer jacket.

22. The steering column assembly of claim 21 wherein the sleeve is fixed relative to the outer jacket.

23. The steering column assembly of claim 21 wherein the internal ribs and external ribs of the sleeve are radially offset.

24. The steering column assembly of claim 21 wherein at least one of the internal ribs of the sleeve is radially aligned with one of the external ribs of the sleeve.

25. The steering column assembly of claim 21 further comprising a bonding agent between the wall of the sleeve and the outer jacket.

26. The steering column assembly of claim 21 wherein the sleeve is made of a material which is relatively more flexible than a material from which the inner jacket and outer jacket is made.

27. The steering column assembly of claim 21 wherein the sleeve is located entirely within the outer jacket.

28. The steering column assembly of claim 21 wherein a width dimension of the internal ribs is greater than a width dimension of the external ribs.

29. The steering column assembly of claim 21 wherein a thickness dimension of the wall of the sleeve is greater than a thickness dimension of the internal and external ribs of the sleeve.

30. A telescoping jacket assembly for use in combination with a telescoping steering column, the telescoping jacket assembly comprising:

- an outer jacket;

- an inner jacket telescopically received within the outer jacket;

- a sleeve between the outer and inner jackets, the sleeve having a wall and at least two internal ribs which protrude from an interior of the wall and contact an outer surface of the inner jacket, and at least two external ribs which protrude from an exterior of the wall and contact an inner surface of the outer jacket to thereby space the wall of the sleeve from the outer jacket and the inner jacket.